

## AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

### LISTING OF CLAIMS

1. (Currently Amended) A compressor comprising:
    - a diffuser;
    - a volute defining an open space in fluid communication with said diffuser; and
    - an impeller operable to compress a fluid stream and direct said fluid stream to said volute, said impeller including:
      - a hub having an axis of rotation; and
      - a plurality of blades extending from said hub, said blades having a surface defined by an axial direction (Z), a radius (R) defined from said axis of rotation of said hub, and a polar angle ( $\Theta$ ), whereby the polar angle ( $\Theta$ ) is ~~substantially defined by the~~ equation:  $\Theta = a * [\text{natural logarithm of } (R)] + b$  a function of the radius (R);
  - wherein said impeller is a radial impeller including an inducer formed proximate a leading edge of each blade, said inducer including a height component in said axial direction (Z) that is substantially five to seven percent of an outer diameter of said impeller.
- 
2. (Original) The compressor of claim 1, wherein each of said blades includes a leading edge and a trailing edge, said leading edge formed proximate said hub and said trailing edge formed proximate said volute.

3. (Currently Amended) The compressor of claim 2, wherein ~~a and b are constants determined from a blade angle of said leading edge, said leading edge a blade angle of~~ said leading edge is generally determined by output requirements of the compressor.

4. (Original) The compressor of claim 1, wherein said diffuser is vaneless, said vaneless diffuser including a generally open space in fluid communication with said open space of said volute.

5-10. (Cancelled)

11. (Currently Amended) An impeller comprising:

a hub having an axis of rotation; and

a plurality of blades extending from said hub, said blades having a surface defined by an axial direction (Z), a radius (R) defined from said axis of rotation of said hub, and a polar angle ( $\Theta$ ), whereby the polar angle ( $\Theta$ ) is ~~substantially defined by the equation:  $\Theta = a * [\text{natural logarithm of } (R)] + b$~~  a function of the radius (R);

wherein said impeller is a radial impeller including an inducer formed proximate a leading edge of each blade, said inducer including a height component in said axial direction (Z) that is substantially five to seven percent of an outer diameter of said impeller.

12. (Original) The impeller of claim 11, wherein each of said blades includes a leading edge and a trailing edge.

13. (Currently Amended) The impeller of claim 12, wherein ~~a and b are constants determined from a blade angle of said leading edge, said leading edge a blade angle of~~ said leading edge is generally determined by output requirements of the compressor.

14-21. (Cancelled)